

Background

State of the Lakes Ecosystem Conference

State of the Lakes Ecosystem Conference (SOLEC) is a binational conference held every two years by the governments of Canada and the United States to assess and report on the state of the Great Lakes, as required under the 1987 Protocol to the Great Lakes Water Quality Agreement (GLWQA).

SOLEC presents a science-based assessment of the state of the Lakes. It is geared to Great Lakes decision-makers from federal governments; states; provincial governments; First Nations; Tribes; non-governmental organizations; academics; industry; recreational groups; sport fishers; commercial fishers; and, health professionals.

History of the GLWQA and the need for indicators

The history of environmental change in the Great Lakes Basin ecosystem reflects the changing attitudes of its inhabitants. In pre-European settlement times, the Basin was a pristine system, with abundant fish and wildlife, almost limitless forests, pure water and clean air. Aboriginal People exploited these resources, but had minimal impact on them. From 1600 onwards, European settlement meant land clearance, over exploitation of fish and wildlife, development of cities and large scale agriculture, , resulted in large scale degradation of the ecosystem. It was only in the past 80 some years that citizens and governments around the Great Lakes began to take action. In 1972 a concerted effort to redress the problems of the past 300 years was started by Canada and the United States by establishing the Great Lakes Water Quality Agreement.

The GLWQA sets out the commitment of the United States and Canada to restore and maintain the chemical, physical and biological integrity of the waters of the Great Lakes basin ecosystem. The governments have been working towards achieving this vision over the past 25 years. The 1987 Protocol to the Agreement called for the development of indicators of ecosystem health.

Billions of dollars have been invested by the two countries to improve the health of the Great Lakes and to strive towards the Agreement's goals. Policies, regulations and programs have been developed to address the complex problems facing the Lakes, including: nutrient pollution; persistent toxic chemicals; habitat destruction; loss of native species and introduction of non-native ones; shoreline alterations; atmospheric deposition of pollutants, and many others.

The challenges facing the management of the Great Lakes Basin Ecosystem are long-term and complex. They require a dedication by society to the care and protection of these invaluable freshwater gems, and their life support system, the basin in which they sit.

An easily understood way of reporting on progress was needed. The suite of Great Lakes indicators will help us assess our progress towards the binational commitment in the GLWQA, and determine how much farther we have to go to meet the goals of the Agreement.

What is an indicator?

An indicator is a piece of evidence or signal that tells us something about the conditions around us. An indicator is a tool which provides us with information about the state of large systems – like the environment, the economy, or even the weather. It gives us a clue about the “bigger picture” by looking at a small piece of the puzzle, or at several pieces together.

Indicators provide us with information about conditions at a particular point in time. To be really useful, indicators should give us information about trends over time.

One of the best ways to track trends in the condition of a system is through the development and use of a set or “suite” of indicators. By looking at a number of indicators together, we can see which way a system is going: up or down, forward or backward. We can then assess whether it is getting better or worse or staying the same.

In the environmental field, and for SOLEC, indicators are commonly used in three ways, to provide information about:

- the state of the environment (the environmental conditions around us);
- the pressures (or influences) that affect natural systems; and,
- activities by governments, industries, organizations and individuals that respond to these pressures.

Human activities – how we build, how we alter the environment, the resources we consume -- can have a dramatic, sometimes irreversible influence on the state of the environment. Indicators inform society about the **pressures** on the environment. Some common indicators of these pressures are the amount of pollutants discharged to the environment, the rate of urbanization, the presence of exotic species such as zebra mussels, and the amount of wetlands filled in (or restored).

Indicators that address **activities** provide valuable information about progress towards goals. Are sewage treatment plants meeting the targets laid down in regulations? Have local targets for restoring wildlife habitat been met? Are young people learning about the environment through schools? Have municipalities adopted sediment control programs to reduce erosion from construction sites?

Over time, indicators can be used to monitor change, to help focus research, monitoring and remediation programs, and to set targets and goals.

SOLEC indicators and what they look like

The list of indicators in the suite is highly diverse. The list presently consists of 80 indicators, which were presented and discussed at SOLEC 98, in Buffalo. The indicators gauge the physical, chemical, biological, economic and social health of the Great Lakes Basin. The variety of proposed indicators and the number of candidates reflects the challenge of assessing the integrity of the complex Great Lakes Basin Ecosystem.

SOLEC 98 was focused on refining and gaining agreement on a set of indicators that could be used to objectively report on the health of the Great Lakes Basin Ecosystem.

SOLEC 2000 indicators are grouped according to SOLEC categories of nearshore and offshore open waters, coastal wetlands, nearshore terrestrial (including land use), human health and unbounded.

A few examples of indicators include: phytoplankton populations, atmospheric deposition of toxic chemicals, extent of hardened shoreline, contaminants affecting bald eagles, urban density, sustainable agricultural practices, air quality, water use and acid rain.

Every two years, these will be used to inform the public and report progress made in achieving the goals of the Great Lakes Water Quality Agreement.

SOLEC 2000

At SOLEC 2000, a report will be tabled that presents information on 29 of these 80 indicators. The indicators being reported reflect the availability of data for each of them. Identification of additional work on other indicators will be part of the discussions at SOLEC.

Next steps

Over the next 10 years, all 80 indicators will be reported on.